Name: _____( )

Class: Primary 4 _____

Primary 4
Semestral Assessment 1 – 2017
SCIENCE

BOOKLET A

9 May 2017

Total Time for Booklets A and B: 1 hour 45 minutes

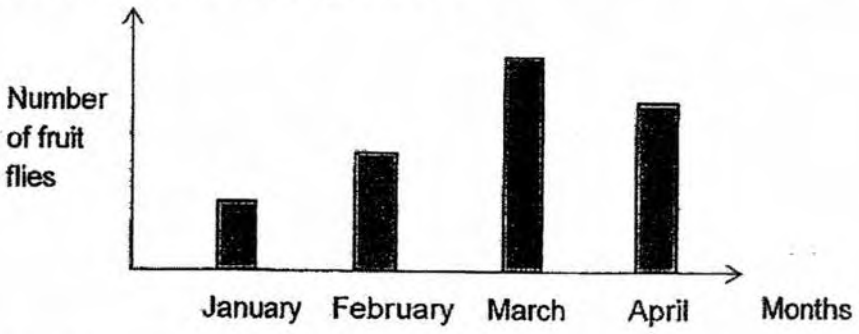
28 questions
56 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

This booklet consists of 20 printed pages.

Section A (28 x 2 marks = 56 marks)
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

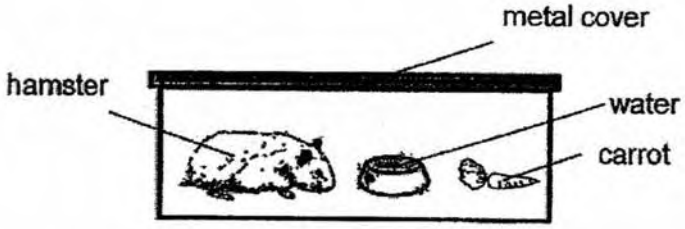
1. Andy counted the number of fruit flies in a tank over a period of four months and recorded his results in the graph below.



Based on his results from January to March, what can he conclude about the fruit flies?

(1) The fruit flies died.
(2) The fruit flies reproduced.
(3) The fruit flies increased in size.
(4) The fruit flies responded to changes.

2. Joe placed a hamster in a metal container as shown below.



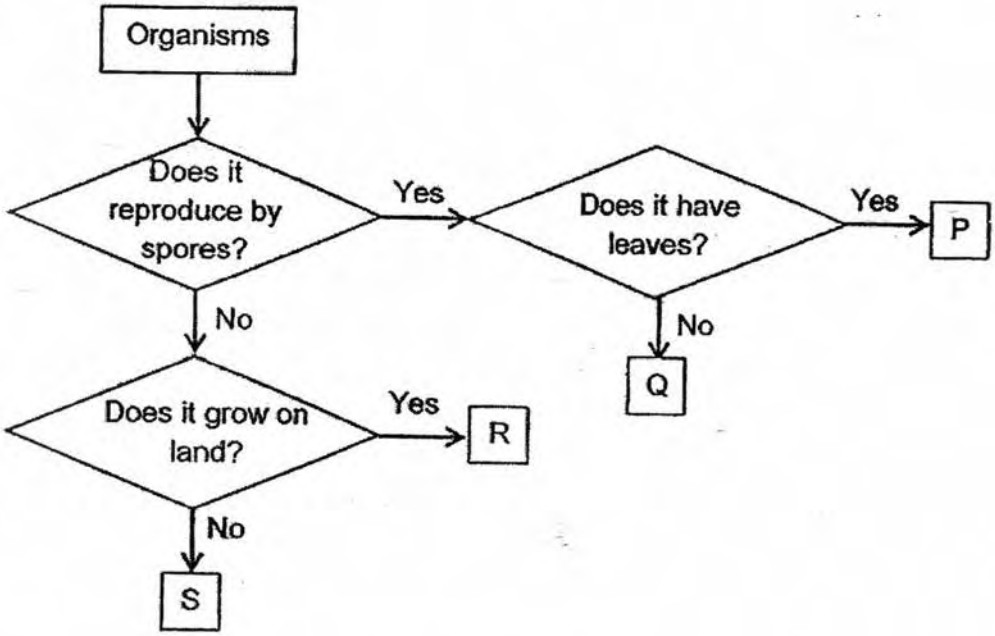
After two days, Joe observed that the hamster had died. Which one of the following is a possible reason for his observation?

(1) It had no air
(2) It had no food.
(3) It had no water.
(4) It had no sunlight.

3. Which one of the following statements is true of non-flowering plants?

(1) They do not produce fruits.
(2) They do not have green leaves.
(3) They do not make their own food.
(4) They produce fruits but not flowers.

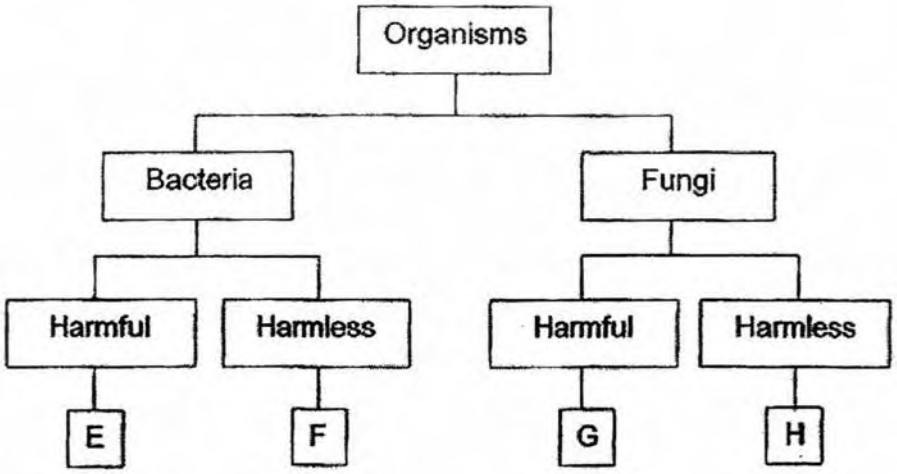
4. Study the flow chart below.



Based on the flow chart, which one of the organisms P, Q, R and S, best represents a bird's nest fern?

(1) S
(2) R
(3) Q
(4) P

5. Study the diagram below.



Which one of the following represents bread mould?

(1) E
(2) F
(3) G
(4) H

6. Four pupils made some statements about bacteria as shown below.

Alex: Bacteria cannot reproduce.

Ben: Bacteria feed on living things.

Clara: Bacteria can make their own food.

Dena: Bacteria can be found everywhere.

Which of the pupils made the correct statements?

(1) Alex and Ben only
(2) Alex and Clara only
(3) Ben and Dena only
(4) Clara and Dena only

7. John saw animal X during a school camp. He recorded his observations of animal X as shown in the box below.

It can swim in water.
It has moist skin.
It reproduces by laying eggs.

Which animal group does animal X belong to?

(1) fish
(2) reptiles
(3) mammals
(4) amphibians

8. The pictures below show two animals.

bat

eagle

Jen made the following statements about the animals.

A Both can fly.
B Both lay eggs.
C Both have wings.
D Both have feathers.

Which of the statements are common characteristics of the animals above?

(1) A and B only
(2) A and C only
(3) B and D only
(4) C and D only

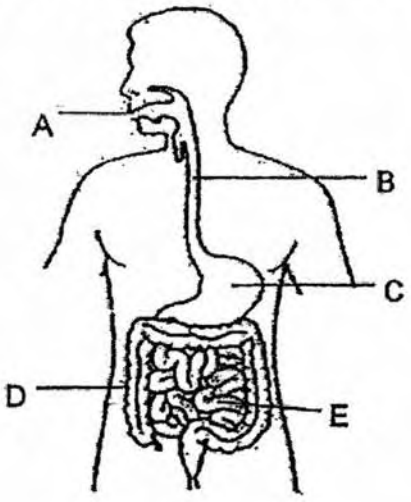
9. The table below shows the characteristics of four animals A, B, C and D. A tick (✓) indicates that the characteristic is present in the animals.

Characteristics	A	B	C	D
Has scales			✓	
Lays eggs	✓	✓	✓	✓
Breathes through lungs	✓	✓	✓	
Has moist skin	✓			

Which one of the following animals A, B, C or D, represents a reptile?

(1) A
(2) B
(3) C
(4) D

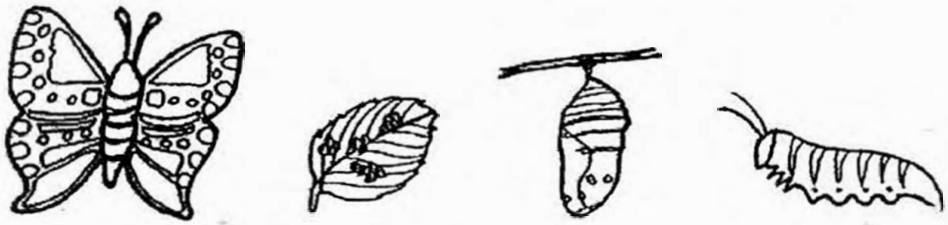
10. The diagram below shows the human digestive system.



Where does digestion take place?

(1) A and C only
(2) B and D only
(3) A, C and E only
(4) B, C and D only

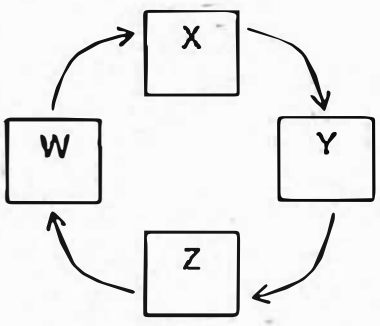
11. Study the diagram below. W, X, Y and Z represent the various stages in the life cycle of a butterfly.



W X Y Z

Which one of the following shows the correct order of the life cycle of the butterfly?

(1)



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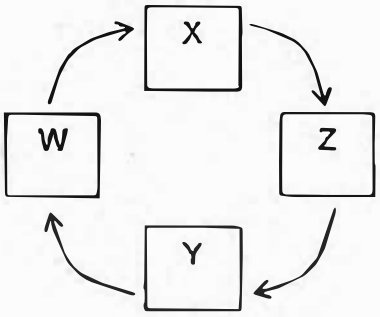

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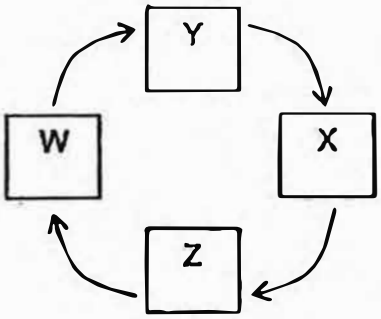

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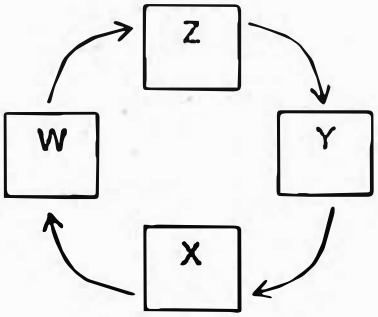


12. Tom made some statements about the differences between an adult grasshopper and a grasshopper nymph.

A A grasshopper nymph is bigger than an adult grasshopper.

B A grasshopper nymph does not feed at all but an adult grasshopper feeds on leaves.

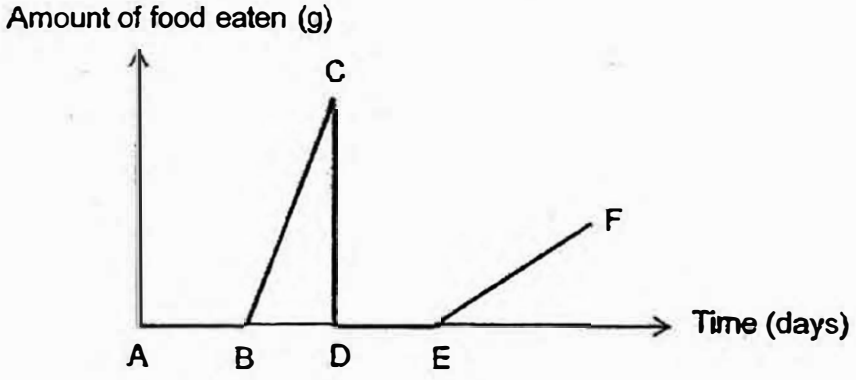
C A grasshopper nymph does not have wings but an adult grasshopper has wings.

D A grasshopper nymph cannot reproduce but an adult grasshopper can.

Which of the statements are correct?

(1) A and B only
(2) A and D only
(3) B and C only
(4) C and D only

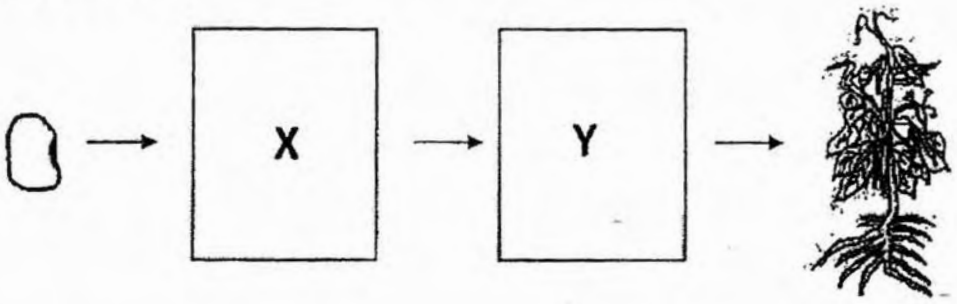
13. Zheng Min kept some beetle eggs in a container. After the eggs had hatched, she gave the mealworms the same amount of food each day. She observed the amount of food eaten by the mealworms as they developed. She recorded her findings in the graph below.



The line DE shows the _____ stage of a beetle.

(1) egg
(2) larval
(3) pupal
(4) adult

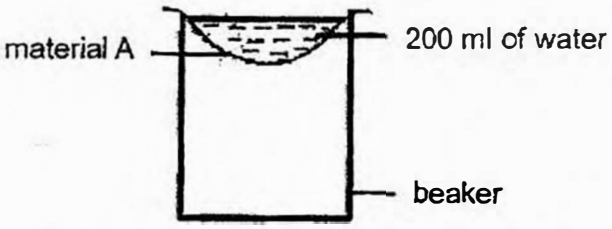
14. The diagram below shows the growth of a young plant with two missing stages X and Y.



Which one of the following shows the correct stages for X and Y?

	X	Y
(1)		
(2)		
(3)		
(4)		

15. Henry wants to select the most suitable material to make a raincoat. He used four different materials A, B, C and D, of similar size and thickness. He placed material A over the beaker and poured 200 ml of water on it.



After an hour, he measured the volume of water collected in the beaker. He then repeated the experiment with the other materials and recorded his results in the table below.

Material	Amount of water collected in the beaker (ml)
A	183
B	51
C	0
D	109

Which material A, B, C or D, is most suitable for making a raincoat?

(1) Material A
(2) Material B
(3) Material C
(4) Material D

16. Study the diagram below.

Group A	Group B
 glass  vase	 hose  curtain

The objects are grouped according to whether they _____

(1) are flexible
(2) are waterproof
(3) float or sink in water
(4) allow light to pass through

17. Kelly poured equal amounts of liquid Z into three containers A, B and C, as shown below.

container A container B container C

She made the following conclusions.

A Liquid Z can be compressed.
B Liquid Z has a definite volume.
C Liquid Z does not have a definite shape.

Which of the conclusion(s) is/are correct based on her experiment?

(1) B only
(2) A and C only
(3) B and C only
(4) A, B and C

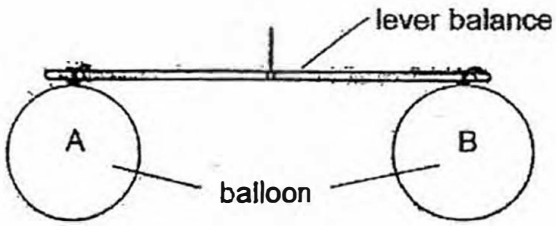
18. Study the table below.

Matter	Properties		
	has a definite shape	has a definite volume	occupies space
Rice	No	Yes	Yes
Honey	Yes	Yes	Yes
Water	No	Yes	No
Oxygen	No	No	Yes

Which one of the following matter is correctly matched to its properties?

(1) Rice
(2) Honey
(3) Water
(4) Oxygen

19. Two identical balloons A and B, were hung on a lever balance as shown in the diagram below. They were both filled with 400 cm^3 of air.

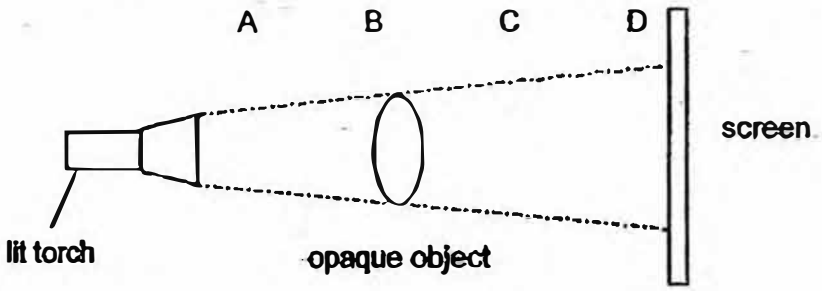


John pumped another 400 cm^3 of air into balloon A.

Which one of the following observations is correct after more air had been pumped into balloon A?

(1) Both balloons will be the same size.
(2) Both balloons will have the same mass.
(3) The lever will tilt down towards balloon A.
(4) The lever will tilt down towards balloon B.

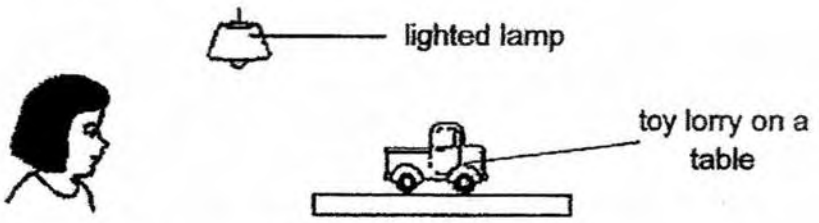
20. An opaque object was placed in front of a lighted torch to form a shadow on a screen.



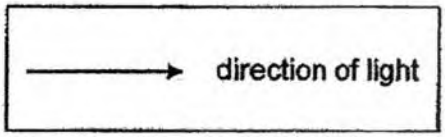
At which position A, B, C or D, should the object be placed in order to form the largest shadow?

(1) A
(2) B
(3) C
(4) D

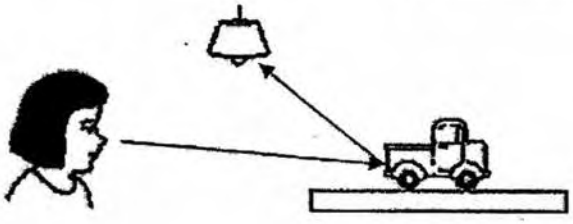
21. Look at the picture below.



Which one of the following shows the correct path that light takes for Sue to see the toy lorry?



(1)



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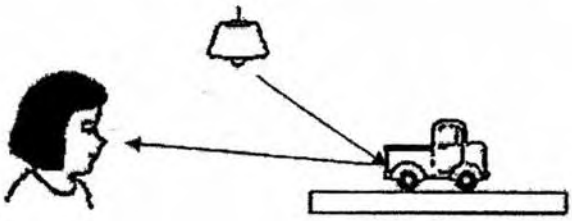

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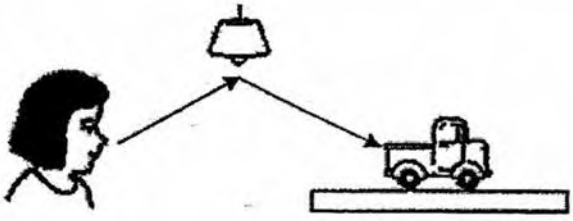

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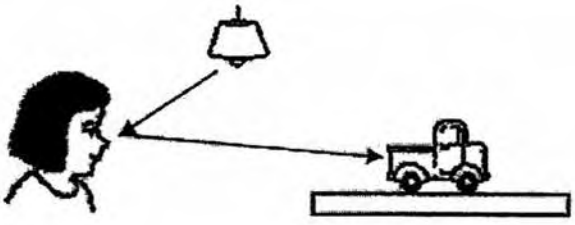
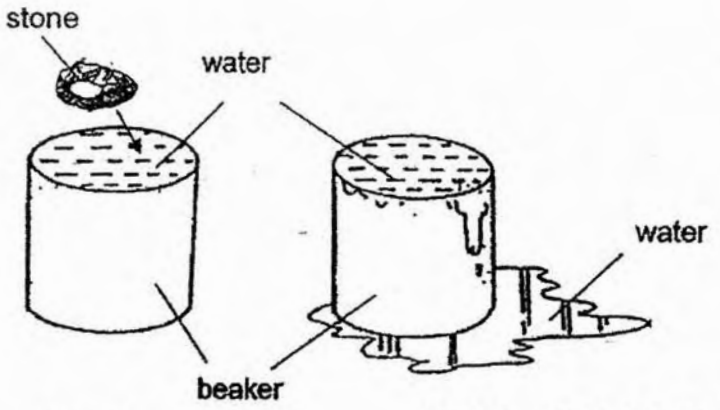


22. Study the diagram below. A stone was gently placed into a beaker that was completely filled with water.



before

after (stone is inside the beaker)

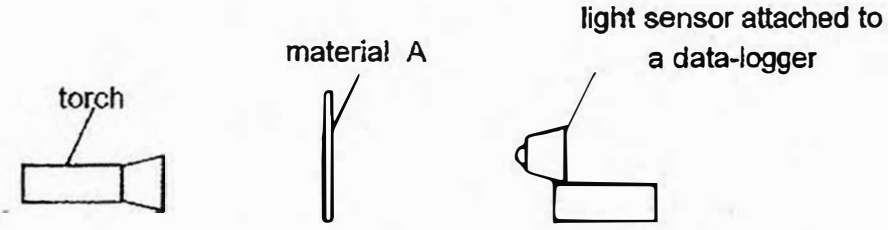
The diagram shows that the _____.

A water has mass
B stone occupies space
C stone has a fixed shape
D water has a fixed volume

Which of the following statements are correct?

(1) A and B only
(2) A and C only
(3) B and D only
(4) C and D only

23. Colin set up an experiment to measure the amount of light that can pass through different materials A, B, C and D, of similar size and thickness.



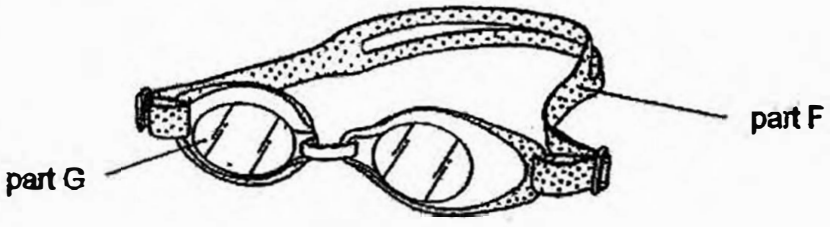
He measured the amount of light that could pass through material A. He then repeated the experiment with the other materials and recorded his results in the table below.

Materials	Reading on light sensor (units)
A	69
B	0
C	200
D	400

Which one of the following materials is most likely made of clear glass?

(1) A
(2) B
(3) C
(4) D

24. The picture below shows a pair of swim goggles.



Which one of the following properties should we consider when choosing suitable materials for making part F and part G?

	Part F	Part G
(1)	flexibility	allows light to pass through
(2)	strength	flexibility
(3)	ability to float	strength
(4)	allows light to pass through	waterproof

25. The set-up below shows a lit torch shining on a wooden ball in a dark room.

torch wooden ball screen

Which one of the following would most likely be seen on the screen?

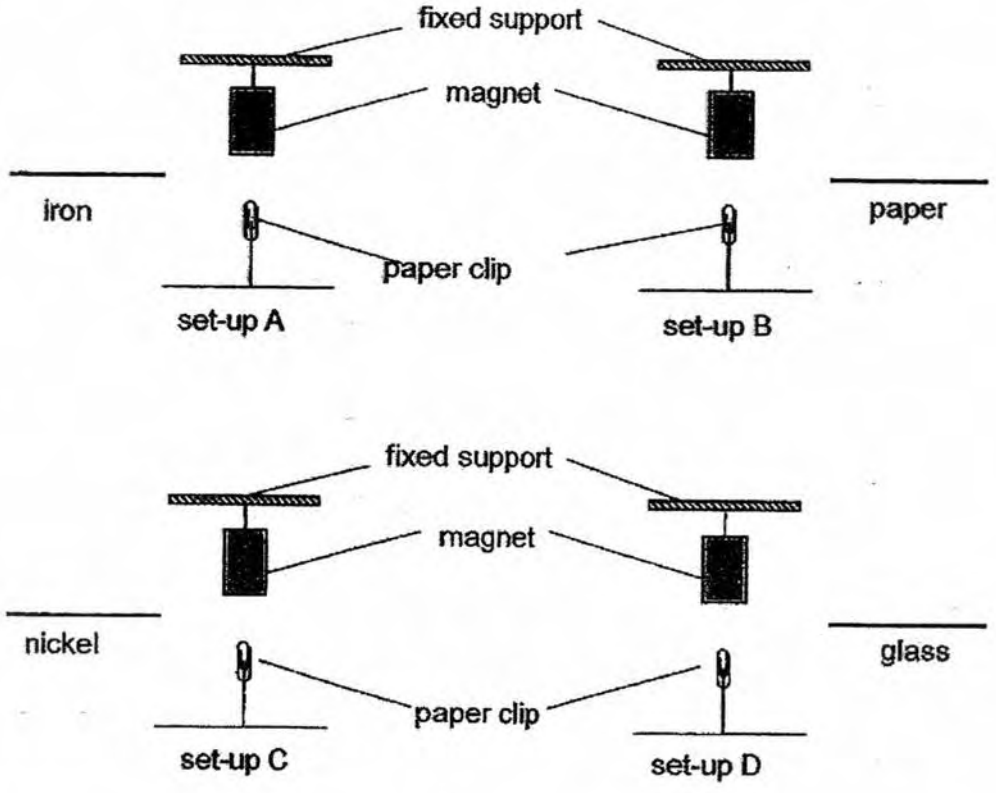
(1) 

(2) 

(3) 

(4) 

26. Joan hung a magnet from a fixed support. Using a string, she tied a paper clip to the table. The paper clip remained in an upright position in the air.
She wanted to place different materials of the same thickness between the magnet and paper clip as shown below.



In which of the set-ups above will the position of the paper clips remain unchanged after the materials were placed in between the magnet and the paper clip?

(1) A and B
(2) A and C
(3) B and C
(4) B and D

27. Elyn wanted to find out the strength of four different magnets W, X, Y and Z. She placed the magnets one at a time, near a tray of pins. She then counted the number of pins that were attracted to each magnet.

W X Y Z

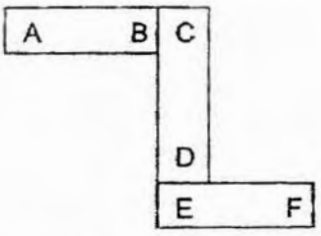
Elyn recorded her results in the table below.

Magnet	Number of pins attracted	Distance between magnet and pins
W	6	3 cm
X	18	3 cm
Y	14	3 cm
Z	9	3 cm

What can Elyn conclude from the results above?

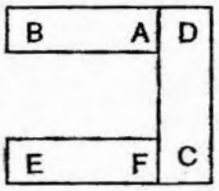
(1) Magnetic strength is strongest at its poles.
(2) Magnet Y is stronger than Z but weaker than W.
(3) Magnetic strength of a magnet does not depend on its length.
(4) Magnetic strength of a magnet depends on the distance between the magnet and the pins.

28. Shale arranged three magnets with poles labelled A to F in the diagram below.

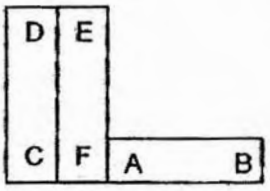


Based on the above observation, which one of the following is **not** a possible arrangement of the magnets?

(1)



(2)



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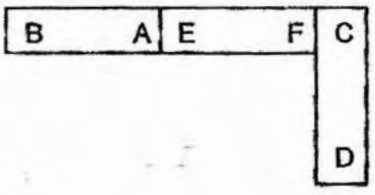

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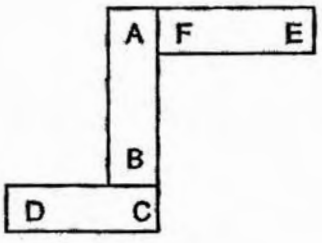


END OF BOOKLET A

Name : _____( )

Class : Primary 4 _____

Primary 4
Semestral Assessment 1 – 2017
SCIENCE

BOOKLET B

9 May 2017

Booklet A	56
Booklet B	44
Total	100

Total Time for Booklets A and B: 1 hour 45 minutes

13 questions
44 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

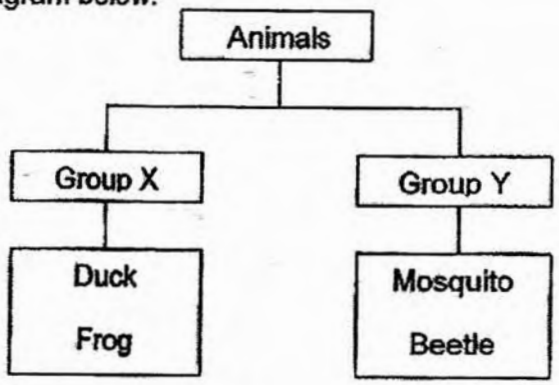
This paper consists of 14 printed pages.

_____

Parent's Signature/Date

Section B (44 marks)
For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in the brackets at the end of each question or part question.

29. Study the diagram below.



(a) Suggest an appropriate heading for Group X and Group Y. [2]

Group X: _____

Group Y: _____

Jerry discovered a nymph of an insect. He observed it for weeks and noticed that it moulted several times before becoming an adult.

(b) How many stages are there likely to be in the life cycle of the insect Jerry observed? [1]

_____

c) Why did the nymph moult? [1]

_____

_____

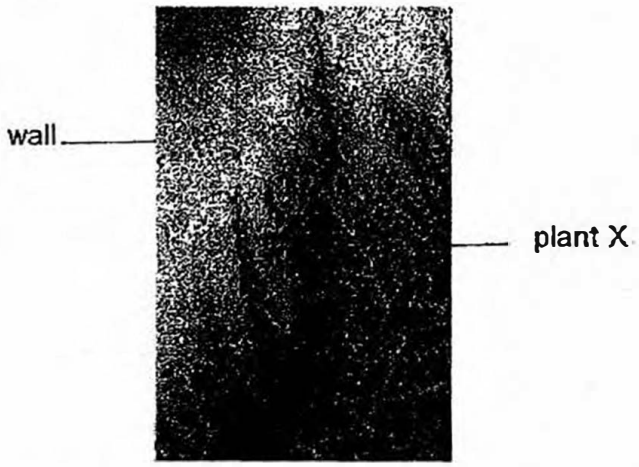
30. The table below shows the characteristics of some plants. A tick (✓) indicates that the characteristic is **present** in the plant.

Characteristic of plant	Plant A	Plant B	Plant C	Plant D
Has edible fruit		✓	✓	
Has poisonous parts	✓		✓	
Has woody stem	✓	✓	✓	✓

Tom said, "Plant C is wrongly classified. How can a plant be poisonous and edible at the same time?"

(a) Do you agree with Tom? Explain why. [1]

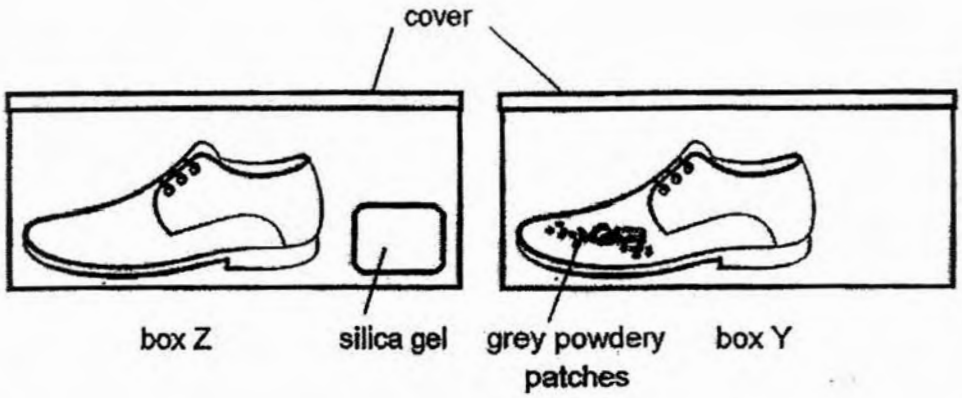
Look at plant X found growing on the walls in Tom's garden as shown below.



(b) Tom identified plant X as having the same characteristics as plant D, based on the table above. His mother told him that he was **incorrect** Explain why. [2]

(c) Give a reason how plant X benefits from growing in the manner shown in the diagram above. [1]

31. Mr Tan placed a leather shoe each into two identical boxes Z and Y, along the corridor He also placed a packet of silica gel in box Z. Silica gel absorbs moisture. After a month, he observed that the shoe in box Y was covered with grey powdery patches.



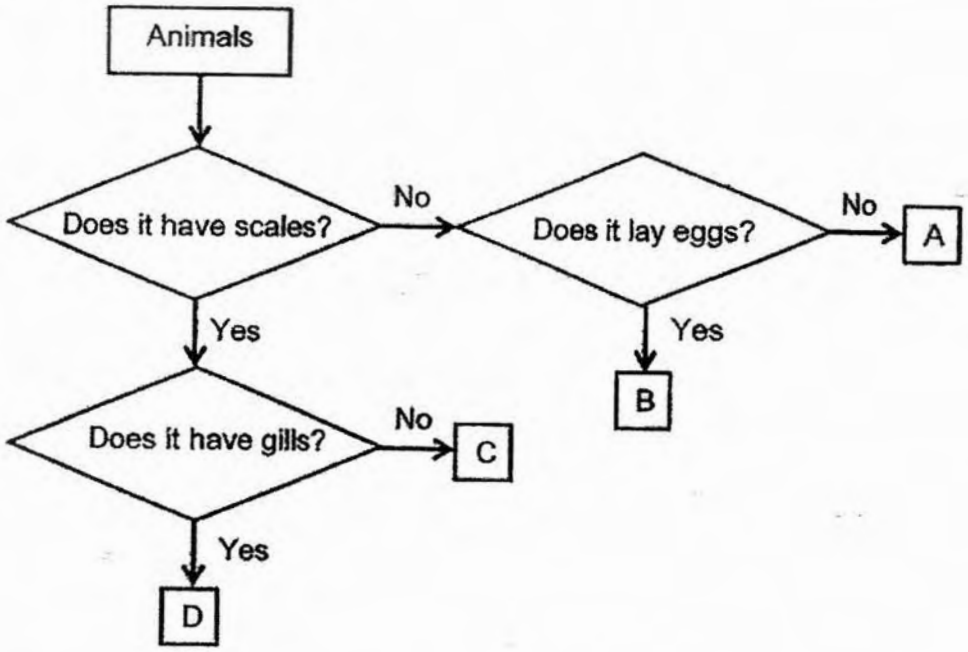
(a) What could the grey powdery patches in Box Y be? [1]

(b) State the condition that was present in box Y but not in box Z that allowed the grey powdery patches to grow. [1]

After two months, Mr Tan observed the shoe in box Y again. He observed that there were more grey powdery patches on it.

(c) What does Mr Tan's observation tell you about the grey powdery organism? [1]

32. Study the flow chart below.



(a) Based on the flow chart, state the characteristics of animal A. [1]

_____

_____

(b) Based on the flow chart, state one difference between animal B and C. [1]

_____

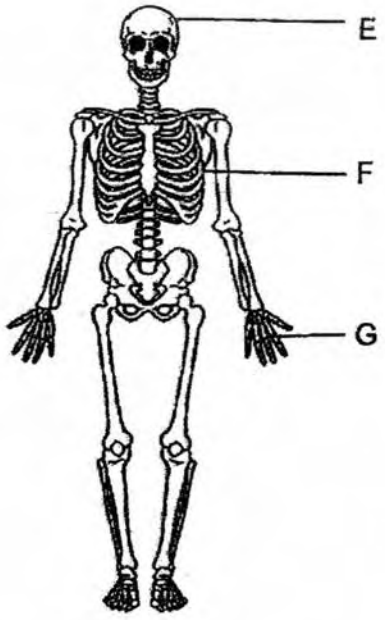
_____

(c) Based on the flow chart, where would you put the following animals? Write the letter A, B, C or D, in the blanks provided. [1]

Chicken: _____

Tilapia: _____

33. The diagram below shows the human skeletal system.



(a) State the functions of part E and F. [1]

_____

_____

(b) Part G works with another organ system to allow a person to hold things. Name the organ system. [1]

_____

(c) Name 2 organ systems that work together to transport oxygen to all parts of our body. [1]

_____

_____

34. Sherry found some eggs of a butterfly on the underside of a leaf. She started a journal to record her observations as shown below.

Date	Observation
1 May	Found an egg on the underside of a leaf
7 May	Egg turned into a caterpillar
19 May	Caterpillar turned into a pupa
4 July	Butterfly emerged from the pupal case

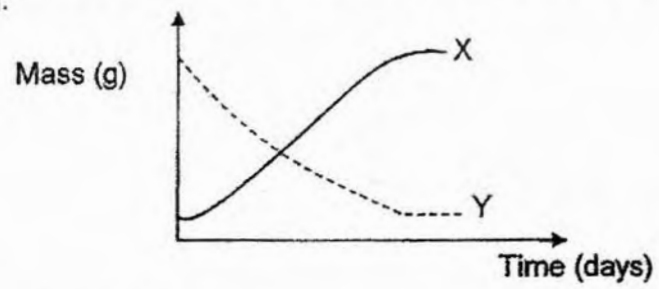
Based on Sherry's journal, answer the following questions.

(a) When did larval stage start? [1]

(b) On which date did the young of the butterfly stop eating and maving? [1]

(c) At which stage of the life cycle of the butterfly would it be considered to farmers? Explain your answer. [1]

35. The graph below shows the changes in the mass of a seed leaf and a seedling.



(a) Which line X or Y, shows the changes in the mass of the seed leaf? Explain your answer. [1]

Ally carried out an experiment on the germination of seeds using set-up A as shown below. She placed the set-up next to the window.

set-up A

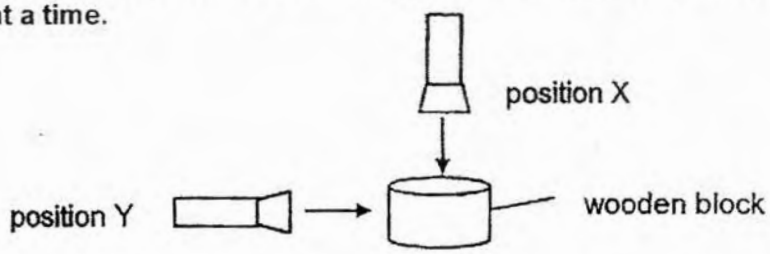
(b) Give a reason why the seeds in set-up A did not germinate. [1]

She then carried out another experiment using set-up B as shown below.

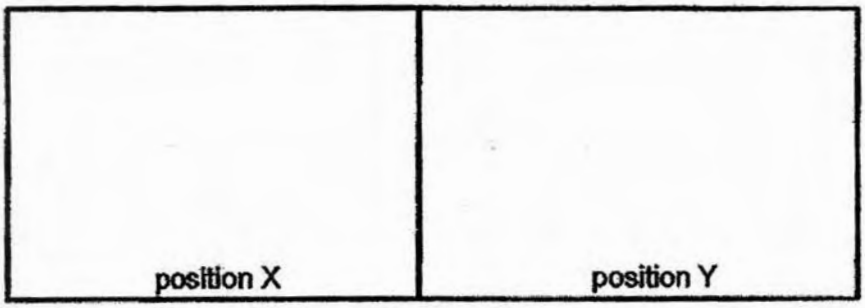
set-up B

(c) Would the seeds in set-up B germinate if it was placed in a dark room? Explain your answer. [1]

36. Shona shone a torch on a wooden block from two different positions X and Y, one at a time.



(a) In the space provided, draw and shade the shadow cast when the torch is shone from position X and Y. [1]

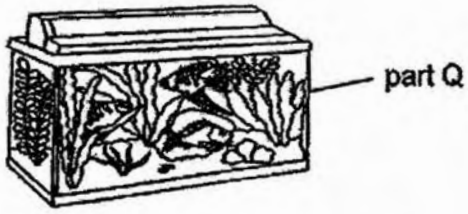


(b) Explain how a shadow is formed. [1]

_____

_____

The picture below shows an aquarium.



(c) Name the most suitable material for making part Q. [1]

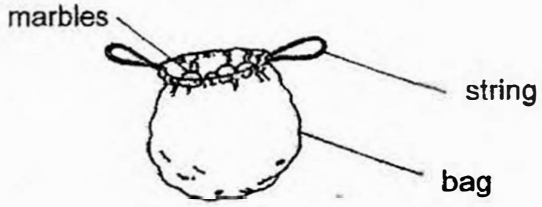
_____

(d) Support your answer in (c) with two important properties which make it a suitable material. [1]

Reason 1: _____

Reason 2: _____

37. Jon wanted to find out which bag could carry the most number of marbles. He used three identical bags J, K and L, made of different materials. He placed the marbles, one at a time, in each bag until the bag broke.



He recorded his results in the table below.

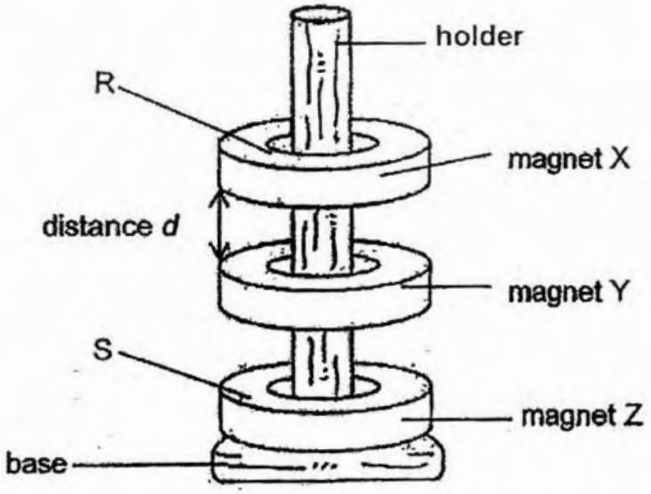
Bag	Number of marbles in the bag when it broke
J	125
K	78
L	134

(a) State the property of the material that Jon was testing. [1]

(b) What is the most number of marbles Bag J can hold before breaking? [1]

(c) Explain why Jon must use marbles of the same size and material for his experiment. [1]

38. The diagram below shows three magnets X, Y and Z.



(a) What kind of material should the holder be made of? Explain your answer.[1]

_____

_____

(b) Jane observed that magnet X and Y were at a distance *d*, from each other. Give a reason for this observation. [1]

_____

_____

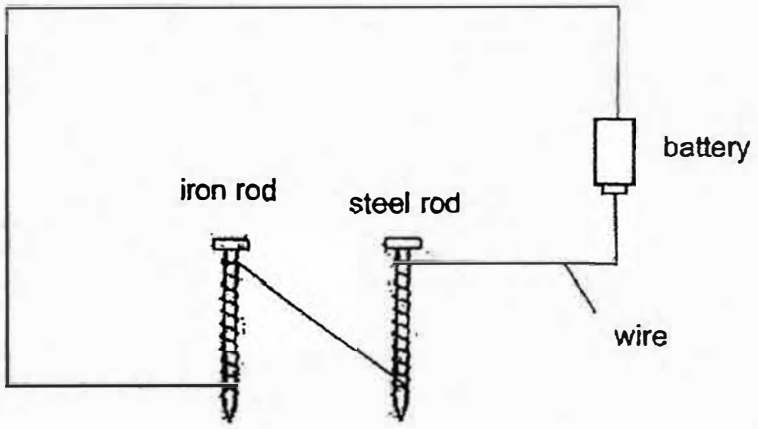
(c) Magnet X was heated at a high temperature for 30 minutes and then returned to its original position on the wooden rod.

How would distance *d* be affected? Give a reason for your answer. [2]

_____

_____

39. A length of wire was coiled around two metal rods as shown in the diagram below. The ends of the wires were connected to a battery.



(a) What would the two metal rods become when the wires are connected to the battery? [1]

The two rods were placed 5 cm above a tray of metal paper clips when the battery and wires were connected. The number of paper clips attracted to each rod is recorded in the table below.

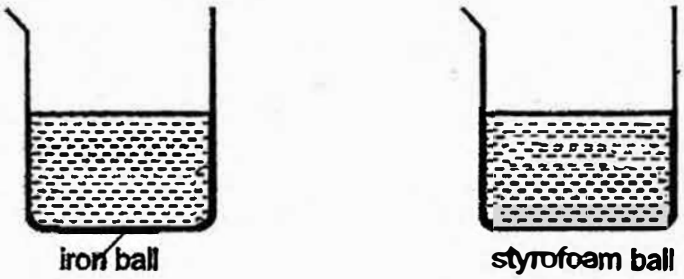
	Iron rod	Steel rod
Number of paper clips attracted	18	9

(b) From the results above, which material, iron or steel, is more suitable to be used to help sort out metals at a scrap yard? Explain your answer. [2]

(c) If the metal paper clips are replaced by plastic paper clips, would the metal rods be able to attract the plastic paper clips? State a reason for your answer. [1]

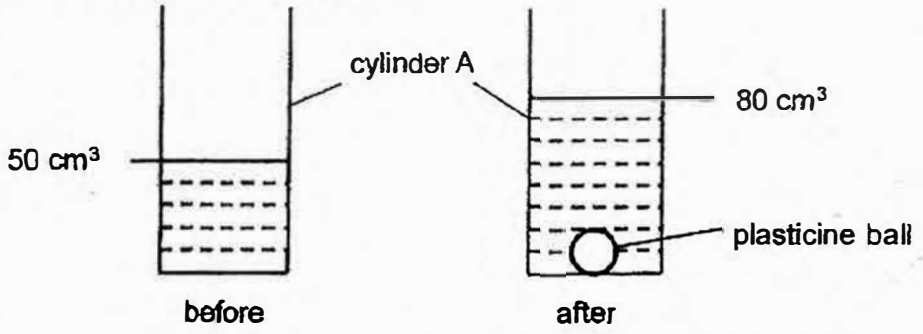
40. Kenny has two balls of the same size but made of different materials. One is made of styrofoam and the other is made of iron He places them into two similar beakers of water, each containing 500 ml of water.

(a) Draw in the diagram below, the position of the balls after Kenny had placed them into the beakers. [1]



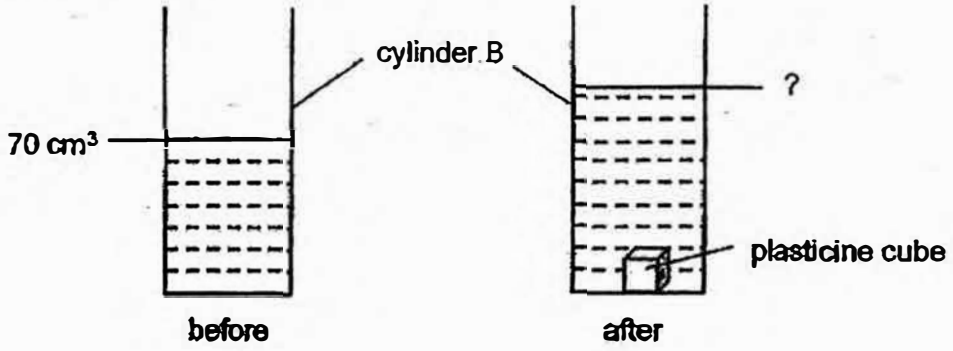
(b) Which of the balls would cause the level of water in the beaker to rise higher? Explain your answer. [2]

41. Kelvin poured 50 cm^3 of water into cylinder A. He then lowered a 30 cm^3 plasticine ball into the cylinder until it was full submerged. The water level rose as shown in the diagram below.



(a) Based on the observation above, state a property of the plasticine ball. [1]

Kelvin then removed the plasticine ball from cylinder A and dried it. The plasticine ball was then moulded into the shape of a cube and placed into cylinder B as shown below.



(b) What is the water level in cylinder B? [1]

(c) What was Kelvin trying to find out when he changed the shape of the plasticine before he put it into cylinder B? [1]

END OF BOOKLET B

SCHOOL : CHIJ ST NICOLAS PRIMARY SCHOOL

LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2017 SA1

CONTACT :

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	1	1	4	3	3	4	2	3	3

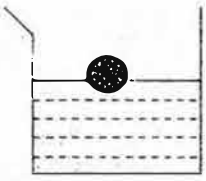
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	4	3	2	3	1	3	4	3	1

Q 21	Q22	Q23	Q24	Q25	Q 26	Q27	Q28
2	3	4	1	4	4	3	1

SECTION B

Q29)	a) Group X : Three stage life cycle Group Y : Four stage life cycle b) Three stage c) The nymph moulted because the old skin is too small for it and grow new skin as they become too big for their old skin.
Q30)	a) No, because some plant parts are poisonous but if that plant part is not poisonous, it can be eaten. b) The plant does not have a woody stem. It has a weak stem to climb the wall for support. c) The wall provides as a support for the stem to stay upright and climb upwards to get more sunlight to make food.
Q31)	a) Mould

	b) Moist was present in box Y but not in Box Z. c) It needs moist to grow.
Q32)	a) It does not have scales and does not lay eggs. b) Animal C has scales while Animal B does not have scales. c) Chicken: B Tilapia: D
Q33)	a) To protect the lungs and the brain b) Muscular system c) The circulatory system and the respiratory system.
Q34)	a) 7th May b) 19th May c) Larval because it eats up the leaves of the plant and the leaves makes food for the plant. Without food, the plant will not be able to survive.
Q35)	a) Line Y as the seed leaves provide the food for the plant and it will lose mass after giving food for the growing seeding. b) As seeds need air to germinate, the layer of oil in Set-up A prevents the seeds from getting air to germinate. c) Yes as seeds do not need light to germinate.
Q36)	a)   Position X Position Y b) A shadow is formed as light travels in straight lines so when an opaque object blocks light from passing through, it will form a shadow. c) Glass d) Reason 1: Glass is waterproof Reason 2: It has to be transparent
Q37)	a) Strength b) 124 c) To ensure a fair test and only the number of marbles affects the results.

Q38)	a) A non-magnetic material because magnetism can pass through it. b) Their like poles were facing each other so the magnets is repelled. c) Distance d will be similar as magnet X had loss most of its magnetism.
Q39)	a) They will both become an electro magnet. b) Iron rod as it attracted the most number of paper clips which means it has the stronger magnetism. c) No because plastic is a non-magnetic material and will not be attracted to the electro magnet.
Q40)	a)  b) Iron ball as it sinks and takes up more space.
Q41)	a) It has a definite volume b) 100 cm^3 c) He is trying to find out if the change of shape will affect the volume of the plasticine.